

R4 Multiple Family Density Study - City Planning Commission, October 12, 1967

CURRENT AREA, HEIGHT, AND PLACEMENT REGULATIONS

Zoning District	Minimum Lot Area per Dwelling Unit in Square Feet	Maximum Usable Floor Area in Percentage of Lot Area	Minimum Usable Floor Area per Dwelling Unit in Square Feet	Required Setback Line Minimum Dimensions in Feet				Maximum Height		Minimum Gross Lot Size					
				Front	Side		Rear	In Feet	In Stories	Area in Square Feet	Width in Feet				
					Least One	Total of Two									
5:32 R3	0 BR 1000 1 BR 1500 2 BR 2100 3 BR 2800	40%	0 BR 500 1 BR 600 2 BR 800 3 BR 1000	40	20	40	40	30	None	43,000	200				
<p>In addition to the above required setback lines, the following minimum distances between the main buildings within the project area shall apply: (a) where buildings are front to front or front to rear three (3) times the height of the taller building, but not less than seventy (70) feet; (b) side to side, one (1) times the height of the taller building but not less than twenty (20) feet; and (c) front to side, rear to side, or rear to rear, two (2) times the height of the taller building but not less than forty-five (45) feet.</p>															
5:33 R4A	0 BR 1000 1 BR 1500 2 BR 2100 3 BR 2800	40%	0 BR 500 1 BR 600 2 BR 800 3 BR 1000	Setback as provided in Section 5:62, otherwise				25	10	20	30	30	None	6,000	50
5:34 R4B	0 BR 800 1 BR 1000 2 BR 1250 3 BR 1500	45%	0 BR 400 1 BR 500 2 BR 700 3 BR 900	Setback as provided in Section 5:62, otherwise				25	10	20	30	40	3	6,000	50
5:35 R4C	0 BR 600 1 BR 800 2 BR 1000 3 BR 1200	2 stories - 70% 2 - 1/2 " - 75% 3 " - 80% 4 " - 110% 5 " - 130%	0 BR 350 1 BR 400 2 BR 600 3 BR 800	Setback as provided in Section 5:62, otherwise				15	5	10	30	60	5	4,000	40
5:36 R4D	0 BR 550 1 BR 800 2 BR 1000 3 BR 1400	110%	0 BR 350 1 BR 400 2 BR 600 3 BR 800	Setback as required in Section 5:62, otherwise				25	10	20	30	150	10	43,000	200

MAXIMUM PERMITTED DENSITY UNDER CURRENT REGULATIONS

DWELLING UNITS PER ACRE

	R3, R4A	R4B	R4C all heights	R4D all heights
0 BR	43.6	54.4	72.6	79.2
1 BR	29.0	43.6	54.4	54.4
2 BR	20.7	34.8	43.6	43.6
3 BR	15.6	29.0	36.3	31.1
Average	23.5	38.3	48.4	46.4

PROPOSED AREA, HEIGHT, AND PLACEMENT REGULATIONS

Zoning District	Minimum Minimum Net Lot Area per Dwelling Unit in Square Feet	Maximum Usable Floor Area in Percentage of Net Lot Area	Required Setback Line Minimum Dimensions in Feet				Maximum Height		Minimum Gross Lot Size	
			Front	Side		Rear	In Feet	In Stories	Area in Square Feet	Width in Feet
				Least One	Total of Two					
5:30 R2A	3000	None	25	5	10	30	30	None	6000	50
<p>In addition to the required setback lines, the following minimum distances between principal buildings within the project shall apply: providing that the horizontal distance between buildings shall be not less than 20 feet.</p> <p>(a) When there is no overlap or when the overlapping walls are without windows, $HD = \frac{La + Lb + 2(Ha + Hb)}{10}$</p> <p>(b) When one or both of the overlapping walls are window walls, $HD = \frac{La + Lb + 2(Ha + Hb)}{6}$</p> <p>KEY: HD = Horizontal Distance; H = Height of building; L = Overlapping length of buildings; a, b = The structures concerned. See Section 5:7(12) for illustrations.</p>										
5:31 R2B	3000 except for fraternities and sororities, minimum lot area shall be 350 square feet per occupant.	None	25	8 or 10% of the lot width which ever is larger. Building spacing as provided in Section 5:30.	18 or 25% of the lot width, which ever is larger	30	30	None	6000	50

Zoning District	Minimum Net Lot Area per Dwelling Unit in Square Feet	Maximum Usable Floor Area in Percentage of Net Lot Area	Minimum Usable Open Space in Percentage of Net Lot Area	Minimum Parking Multiple Family Residential Use*	Required Setback Line Minimum Dimensions in Feet				Maximum Height		Minimum Gross Lot Size	
					Front	Side		Rear	In Feet	In Stories	Area in Square Feet	Width in Feet
						Least One	Total of Two					
5:32 R3, R4A	0 BR - 2000 1 BR - 2400 2 BR - 3200 3 BR - 4000	25%	65%	2 spaces per unit	Setback as provided in Section 5:62, otherwise: 40 20 40 40 and building spacing as provided in Section 5:30.				30	-	435,600	400
5:33 R4B	0 BR - 1400 1 BR - 1700 2 BR - 2300 3 BR - 2900	35%	55%	1.5 spaces per unit	Setback as provided in Section 5:62, otherwise: 25 12 26 30 and building spacing as provided in Section 5:30.				30	-	14,000	120
5:34 R4C	0 BR - 450 1 BR - 550 2 BR - 775 3 BR - 1000	2 stories - 50% 3 " - 60% 4 " - 80% 5 " - 90%	2 stories - 40% 3 " - 40% 4 " - 35% 5 " - 33%	1 space per 600 square feet of usable floor area.	Setback as provided in Section 5:62, otherwise: 25 12 26 30 and building spacing as provided in Section 5:30.				60	5	7,900	66
5:35 R4C/D	0 BR - 350 1 BR - 425 2 BR - 600 3 BR - 750	6 stories - 100% 7 " - 110% 8 " - 120% 9 " - 130% 10 " - 140%	6 stories - 33% 7 " - 34% 8 " - 35% 9 " - 35% 10 " - 36%	1 space per 600 square feet of usable floor area.	Setback as provided in Section 5:62, otherwise: 25 10 30 30 and building spacing as provided in Section 5:30.				110	10	32,000	130
5:36 R4D	0 BR - 450 1 BR - 550 2 BR - 775 3 BR - 1000	110%	50%	1.5 spaces per unit	Setback as provided in Section 5:62, otherwise: 40 30 60 30 and building spacing as provided in Section 5:30.				140	10	83,000	200

MAXIMUM PERMITTED DENSITY UNDER PROPOSED REGULATIONS DWELLING UNITS PER ACRE

	R3, R4A	R4B	R4C				R4C/D			R4D
			2 story	3 story	4 story	5 story	6 story	7 story	8-10 story	
0 BR	21.8	30.5	54.5	65.5	87.2	98.0	109.0	120.0	124.5	96.0
1 BR	18.1	25.4	43.6	52.4	70.0	78.5	87.2	96.0	102.5	79.4
2 BR	13.6	18.9	31.1	37.3	50.0	56.0	62.2	68.6	72.7	58.2
3 BR	10.9	15.0	24.2	29.0	38.8	43.5	48.4	53.4	58.0	43.6
Average	15.1	21.0	34.9	42.0	56.0	62.7	69.8	76.8	82.1	63.5

over-all average 48.6

over-all average 78.6

Proposed Revisions in Permitted Uses

It is proposed to delete medical and dental offices from the uses permitted in "R4" zones. See the section on "Related Ordinance Changes" for an explanation of this change.

Explanation

The basic change in the "R4B" district is again a reduction in Maximum Floor Area in Percentage of Lot Area. This reduction is designed to make the density and intensity of "R4B" developments compatible with other residential uses in the intermediate areas of the city, where density is likely to average seven to fourteen units per acre. It also enables the required parking to be provided without sacrifice of the intended amenities.

The minimum lot has been increased to the dimensions of approximately two "R1C" lots, reflecting the considerations that:

- a. In order to provide the intended amenities, the lot must be larger than a single-family lot, and
- b. The proposed lot size fits a common lot size in the city--roughly equivalent to two "R1C" lots.

The required side setback has been increased by two feet on the least side to provide for the driveway width required by refuse-collection vehicles.

"R4C"

Proposed Revisions in Area, Height and Placement Regulations

See table on page 23.

Proposed Revisions in Permitted Uses

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Explanation

Commission's basic aims of the proposed changes in the "R4C" regulations are threefold; (1) to free a part of each lot for open space; (2) to maintain a high density; and (3) to provide for the necessary parking facilities. At present, the maximum number of dwelling units permitted per acre is fixed by the Minimum Lot Area Per Dwelling Unit requirement in the "R4C" district and is the same regardless of the height and floor area of the building. A developer can fit the same number of units into a two-story as into a five-story building as illustrated in the table on page 20.

Parking is the critical controlling factor that determines the height, or building ground coverage, and the number of dwelling units to be obtained on a given lot. The result is a predominance of low structures, two and a half and three story, which cover an undesirably high proportion of the lot; open spaces, not being protected by any regulation, may be practically non-existent, while parking may claim over half of the lot.

An examination of apartment developments under the existing "R4C" controls, and after numerous test cases, found that a minimum of usable open space, a high density and required parking could not be obtained on small lots--less than 12,000 to 13,000 square feet, except if certain architectural techniques were employed, such as parking under the structure, underground parking or off-site parking.

Density Control

"R4C" Existing

	2 Stories		3 Stories		4 Stories		5 Stories	
	*Units/ Ac(LA)	Units/ Ac(FAR)	Units/ Ac(LA)	Units/ Ac(FAR)	Units/ Ac(LA)	Units/ Ac(FAR)	Units/ Ac(LA)	Units/ Ac(FAR)
OB	73	87	73	99	73	137	73	162
1B	54	76	54	87	54	120	54	142
2B	44	51	44	58	44	78	44	94
3B	36	38	36	44	36	60	36	71

* Controlling Density Factor: Lot Area/DU
 LA--Lot Area Per Dwelling Unit
 FAR--Floor Area Ratio

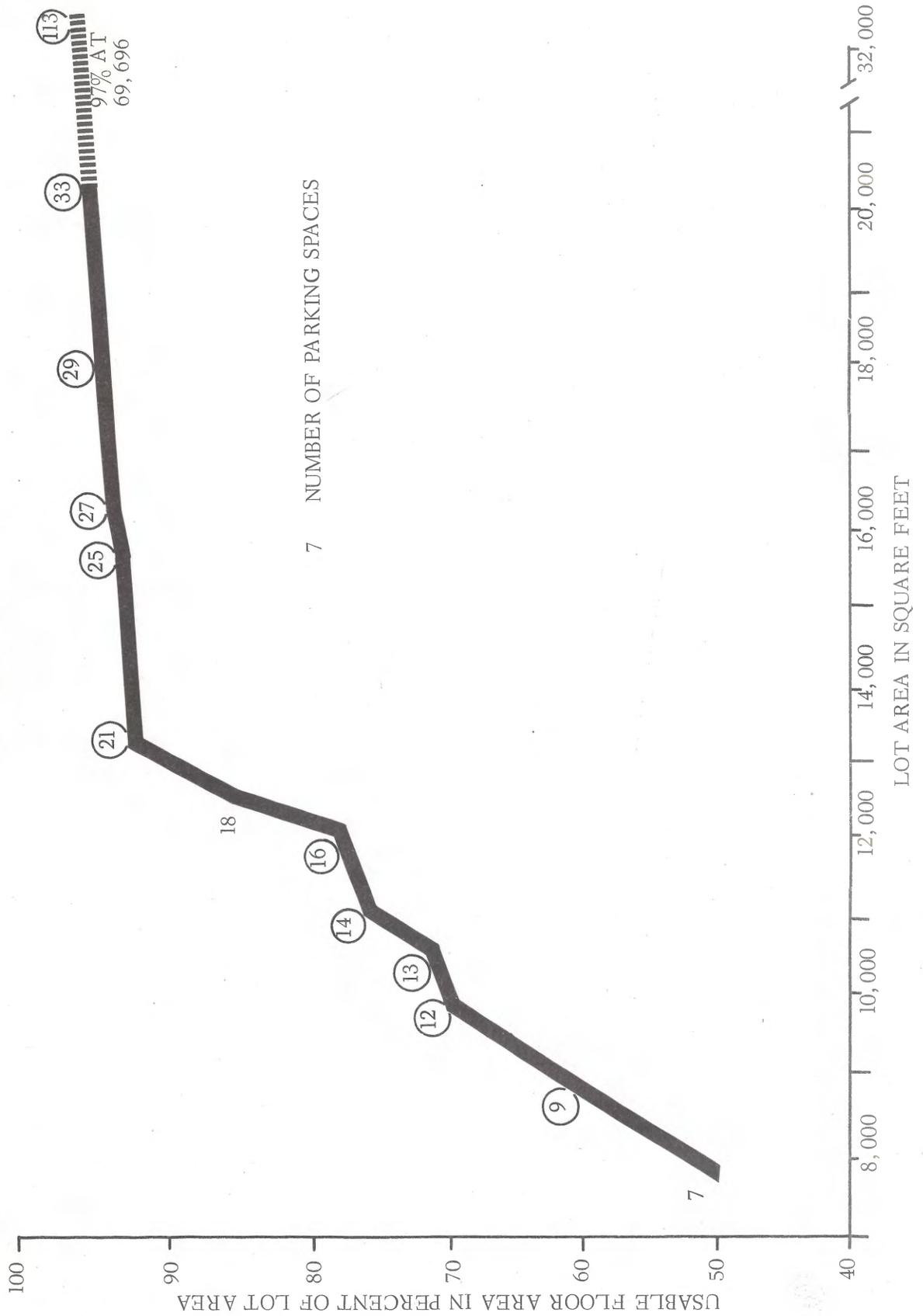
Commission considered many potential techniques that could be employed to achieve balanced regulations for a small lot size. A few of the more significant techniques are listed here:

1. To require that fifty percent of required parking be placed underground or under structure.
2. Increase the existing minimum sized lot from 4,000 to approximately 14,000 square feet.
3. Reduction of permitted floor area and the use of premiums as an incentive for additional building area, for greater than the minimum required open space and/or lot size, underground parking, and structure parking.
4. Though appropriately structured controls limit the density on smaller or minimum sized lots and increase the density on larger parcels.

Thus, Commission recognizing that the "ideal" controls could not be achieved and believing that usable open space could not be allowed to sink below a certain percent of the lot if it were to perform its function, did not structure the proposed regulations to guarantee a maximum density on each lot with surface parking. The recommended controls do provide the flexibility for an increased floor area (density) with surface parking on lots larger than the minimum required. Also, the maximum permitted density can be obtained on any lot size if parking is accommodated other than totally on surface. To provide the necessary parking the developer has several alternatives; he can put part of his parking underground or beneath the building, can acquire land appropriately zoned for parking within 500 feet of the site.

The following graph presents the relationships between usable floor area and lot area, noting the required parking that can be obtained on surface with a minimum usable open space of 40 percent of lot area. At the recommended minimum lot area, 7,920 square feet instead of 4,000 square feet, a usable floor area in percent of lot area of 50 percent can be obtained with surface parking. Under existing controls a typical 2- 1/2 story development could

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obtain a usable floor area in percent of lot area of 75 percent. However, the proposed regulations permit 100 percent if parking is accommodated other than on surface. The 75 percent with surface parking can be achieved on a lot of approximately 11,000 square feet. For lots over 11,000 square feet higher than the typical 2- 1/2 story, 75 percent can be easily obtained--92 percent at 13,400 square feet, etc. The following table shows approximate density comparisons between the existing and proposed controls for different lot sizes for two bedroom and average bedroom mix complexes.

Density Comparisons "R4C"

<u>Existing</u>			<u>Proposed</u>			
Lot Size	2 Bdrm.	Avg. Mix	<u>Surface Parking</u>		<u>Other</u>	
			2 Bdrm.	Avg. Mix	2 Bdrm.	Avg. Mix
7920	7.9	8.8	5.7	6.3	10.2	11.4
8712	8.9	9.7	7.0	7.8	11.2	12.7
17424	17.4	19.4	22.5	25.1	22.5	25.1

The parking requirement for "R4C" is suggested to be changed from a per-unit to a square footage basis. The per-unit basis encourages a disproportionately high number of large units, since a developer must provide the same number of spaces for a six-man unit as for an efficiency. Requiring one space for each 600 square feet of usable floor area, it is hoped, will encourage or make possible a greater variety of unit types. The square footage measure, because it bears a more direct relation to the number of occupants than does the per-unit measure, more accurately reflects need. Given minimum-sized units, the proposed requirement equals about one space per unit: a common standard and one that apparently will meet the area's needs, as revealed by a survey of 14 central-area apartment buildings conducted by the Central Area High Rise and Parking Committee.

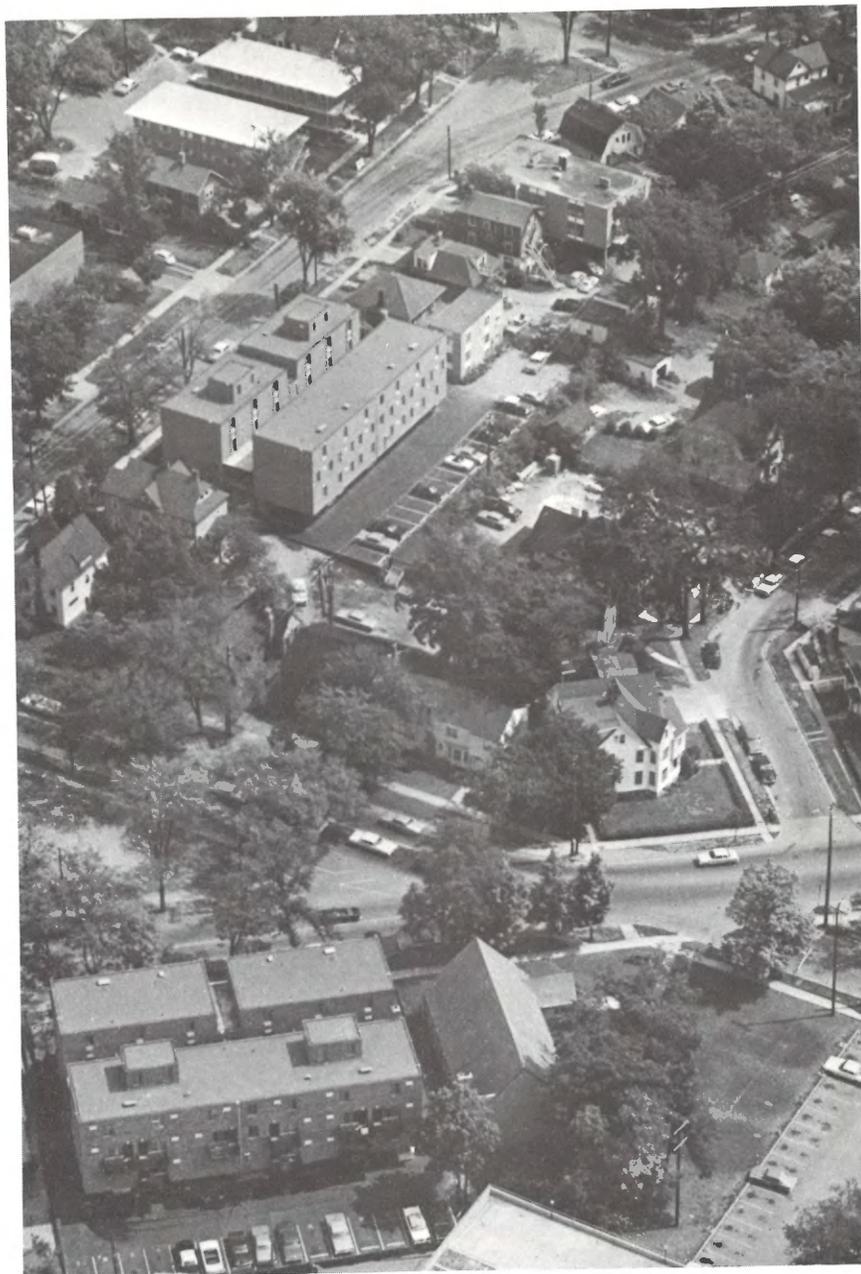
Increases in both front and side setbacks have been recommended for the "R4C" zone. The recommendations stem from the fact that the present requirements are too low to fulfill the function of a setback. The five foot side dimension creates an unusable space which amounts to nothing more than a canyon between buildings, and promotes an undesirable crowding of structures. It affords residents of one building no escape from the residents of the next. Similarly, the 15 foot front setback affords them little separation from the public right-of-way. The proposed regulations are designed to guide developments of the future, rather than to perpetuate setback regulations which, in the face of present-day occupancy and construction characteristics, are anachronistic. The increased side setbacks will provide a meaningful minimum distance between buildings, and accommodate the driveway width required by refuse-collection vehicles. The increased front setback will protect residents from the streets and protect the street against being completely walled in by structures. In addition, it will provide a more meaningful free space between the row of residential structures and the row of cars parked at the side of the street. Equally, the increased front setback will provide necessary space for a high level of pedestrian activities caused by the high dwelling unit population characteristics of the "R4C" District.

"R4C" Proposed Revisions in Area, Height and Placement Regulations

		<u>Present</u>	<u>Proposed</u>
Minimum Net* Lot Area Per Dwelling Unit	0 BR	600 sq. ft.	450 sq. ft.
	1 BR	800	550
	2 BR	1000	775
	3 BR	1200	1000
Minimum Usable Floor Area Per Dwelling Unit	0 BR	350 sq. ft.	None
	1 BR	400	
	2 BR	600	
	3 BR	800	
Maximum Usable Floor Area--	2 Story	70 %	100 %
	2 1/2 Story	75 %	
	3 Story	80 %	
	4 Story	110 %	
	5 Story	130 %	
Minimum Usable Open Space--	2 Story	None	40 %
	3 Story	None	
	4 Story	None	
	5 Story	None	
Required Setback in Feet: As provided in Section 5:62, otherwise**			
Front		15	25
Least Side		5	12
Total of Two Sides		10	26
Rear		30	30
Minimum Lot Size	Area in Square Feet	4000	7920
	Width in Feet	40	66
Parking Standard		1 1/3 spaces per unit	1 space per 600 sq. ft. floor area
Maximum Overall Density (all heights) at Average Mix		48.6*** units/ac.	48.6 units/ac.
Height Limitation		5 story	None

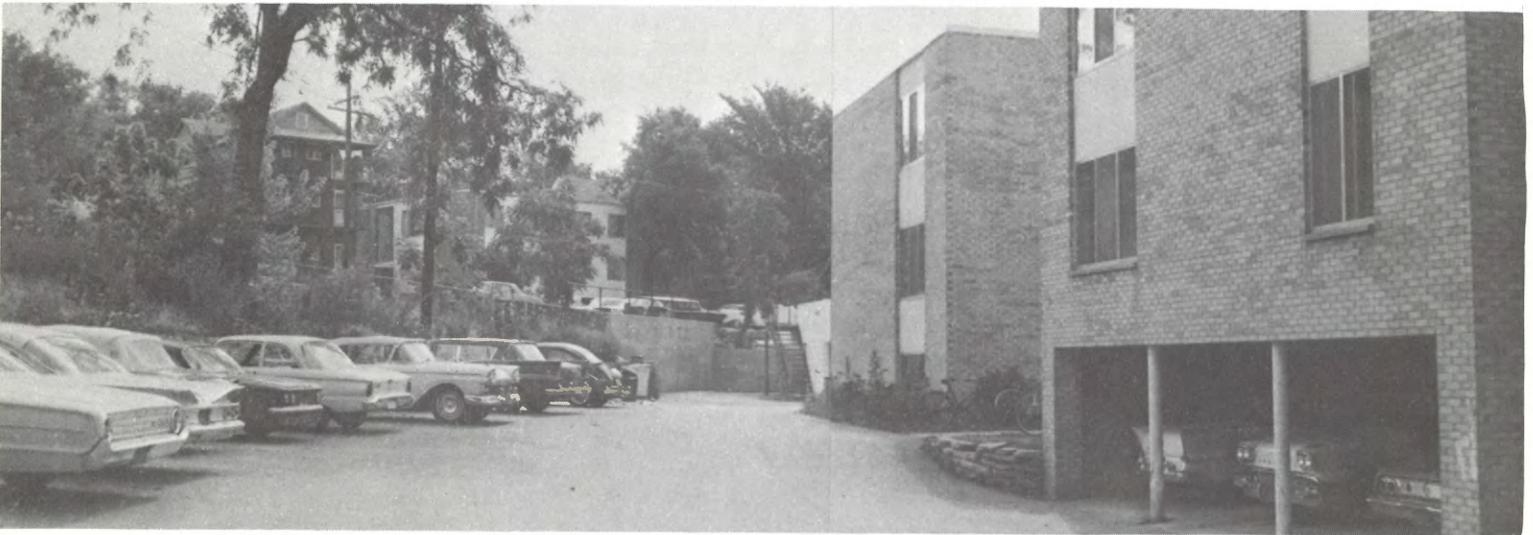
NOTES: * "Net" lot excludes the area of streets that may be internal to a project.
 ** A formula for the spacing between buildings on the same lot as proposed to be added. See p. 15.
 *** Controlled by lot area per dwelling unit.

Illustration 5



When a number of typical "R4C" developments are constructed in an area, usable open space and trees tend to disappear. Note the different intensity of land use between new developments and older structures.

Illustration 6



As currently developed, side and rear yards in "R4C" developments are often devoid of amenities

The present lot width and area requirements for "R4C" can be criticized on several grounds. First, on the grounds of desirability: a 40-foot lot, at the permitted density, cannot possibly provide necessary setbacks, open space, or in most cases, parking. Detroit and Grand Rapids provide that a lot of this size, even if zoned for apartments, may not be developed for more than one family. Second, there is evidence that such lots are not feasible to develop as multiple-family. During 1964, permits were issued for 295 apartment units in the central area of the City. In only a few cases were these apartments constructed on lots less than 66 feet in width, and in no case was a new structure erected on a minimum-size lot. Third, the present minimum lot size of 4000 square feet is not that common in the "R4C" areas of the city. The current standard allows almost 11 parcels per acre; by contrast, the number of parcels per acre in the central area as a whole ranges from five to eight. Originally, most of the central area was platted in 66-foot lots. The 40-and 33-foot lot widths are the

result of fragmentation of the original parcels. A substantial number of the original lots, however, have remained intact.

Finally, there is the basic question of whether the Zoning Ordinance should be tied to the conditions of the past, when these conditions will adversely affect future development. The answer must be negative. Zoning, while it must work to a certain extent from the materials provided by the past, must be prospective--must look to the future, and provide for the needs of the city's residents under the present trends of development. The proposed "R4C" lot size requirements have taken both the past and the future into account: they represent an adaptation of a common lot size, yet one that is large enough to allow desirable development.

"R4C/D"

Proposed Area, Height and Placement Regulations

Minimum Net* Lot Area Per Dwelling Unit	0 BR	350
	1 BR	425
	2 BR	600
	3 BR	750
Maximum Usable Floor Area--Percentage of Net* Lot	6 Story	140 %
	7 Story	
	8 Story	
	9 Story	
	10 Story	
Minimum Usable Open Space--Percentage of Net* Lot	6 Story	40%
	7 Story	
	8 Story	
	9 Story	
	10 Story	
Required Setback in Feet: As provided in Section 5:62, otherwise**		25
Front		10
Least Side		30
Total of Two Sides		30
Rear		
Minimum Lot Size		32,000
Area in Square Feet		130
Width in Feet		
Parking Standard		1 space per 600 sq. feet floor area
Maximum Overall Density (all heights) at Average Mix		78.6 units/ac.
Height Limitation		None

NOTES: * "Net" lot excludes the area of streets that may be internal to a project.
 ** A formula for the spacing between buildings on the same lot is proposed to be added. See p.15.